

ABSTRACT OF THE DISCLOSURE

A method is provided for forming a microstructure with an interfacial oxide layer by using a diffusion filter layer to control the oxidation properties of a substrate associated with formation of a high-k layer into the microstructure. The diffusion filter layer controls the oxidation of the surface. The interfacial oxide layer can be formed during an oxidation process that is carried out following deposition of a high-k layer onto the diffusion filter layer, or during deposition of a high-k layer onto the diffusion filter layer.